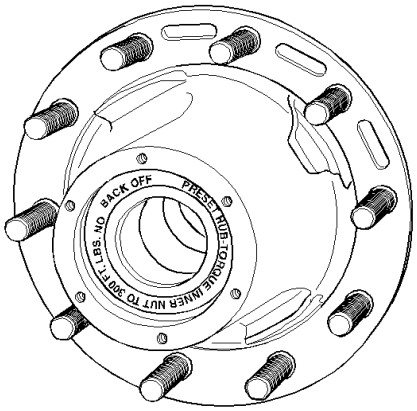
ConMet™ PreSet® PreGreased Service Manual

For Grease Lubricated Trailer Hub Assemblies

CMI-100M-199



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Read this manual carefully, providing extra attention to its explanations and instructions. To ensure safe, continuous, trouble-free operation, understand your wheel end system, and keep all components in proper operating condition. Pay particular attention to all NOTES, CAUTIONS, WARNINGS, and DANGERS to avoid the risk of personal injury or property damage, and realize these statements are not exhaustive. ConMet cannot possibly know or evaluate all conceivable methods in which service may be performed or the possibly hazardous consequences of each method. Accordingly, those who use a procedure not recommended by ConMet must first satisfy themselves that neither their safety nor the safety of the product will be jeopardized by the service method selected. Use only ConMet approved replacement parts. Do not attempt to use damaged parts. DISC WHEEL INSTALLATION PROCEDURES (ConMet part number 103282) and PRESET PREGREASED DECALS (ConMet part number 106859) are available upon request.

Notes

These activities include additional information that may assist the technician in service procedures (see figure 1).

FIGURE 1

Cautions

These activities indicate that product damage may result from failing to heed the stated advisory (see figure 2).

FIGURE 2

Warnings

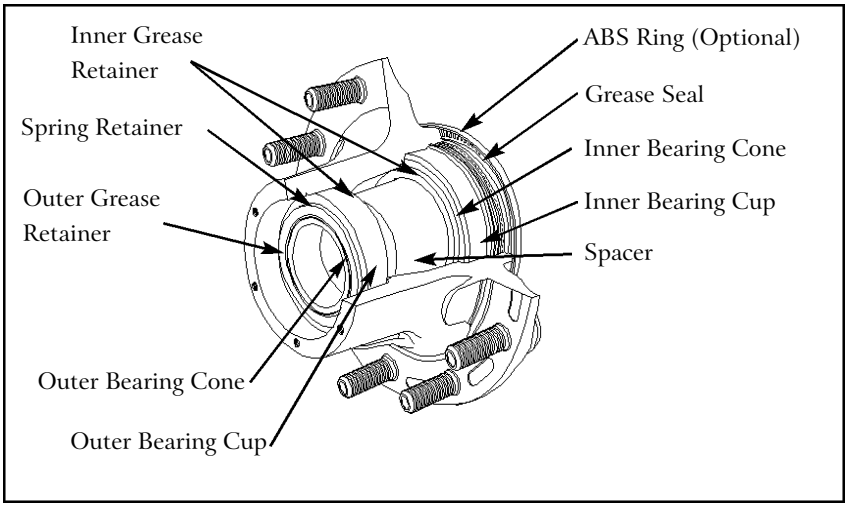
Associated activities indicate that personal injury may result from failing to heed the advisory. Personal injury is not equated to career-ending injury but may result in possible change in quality of life (see figure 3).

FIGURE 3

Dangers

Associated activities indicate that death or serious personal injury may result from failing to heed the stated advisory. Serious personal injury may be equated to career-ending injury (see figure 4).

FIGURE 4



TN PreSet PreGreased Trailer Hub
FIGURE 5

Consolidated Metco, Inc. is recognized as the leader in the design and manufacture of light-weight components for the heavy truck industry. With the addition of PreSet® Wheel End technology to our family of products, ConMet now offers the best solution to prevent premature wheel end failures.

ConMet's PreSet PreGreased Wheel Ends can extend service intervals up to 500,000 miles on highway applications, while still providing substantial weight savings to improve fuel efficiency and increase payload capacity.

Contact ConMet at 1-800-547-9473 or www.conmet.com.

When installed as OEM equipment, ConMet PreSet PreGreased Wheel Ends offer up to a five-year/500,000 mile warranty on all components, including bearings and seals. With periodic inspections and proper maintenance, actual service intervals can extend beyond 500,000 miles. These assemblies include ConMet lightweight aluminum hubs, premium grease seals, specially toleranced roller bearings pre-packed with Mobilith SHC 220 Grade 2 grease, and unique precision-machined bearing spacers, eliminating the need to manually adjust wheel end play. These components are delivered as a complete package, eliminating the potential for premature failure due to improper assembly and/or installation (see figure 5).

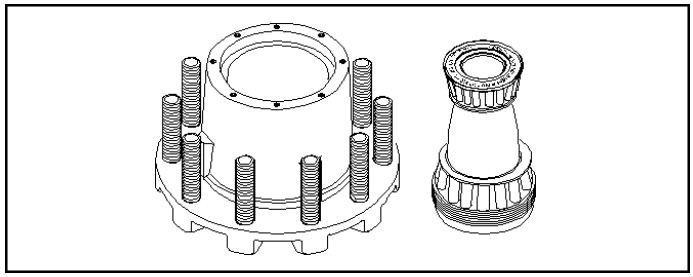
Literature #	Description
CMI-100M-199	PreSet PreGreased Service Manual for Grease Lubricated Trailer Hub Assemblies
CMI-101M-199	PreSet Service Manual for Oil Lubricated Steer, Drive, and Trailer Hub Assemblies
CMI-103M-199	Service Manual for Manually Adjusted Steer, Drive, and Trailer Hub Assemblies

Corresponding Literature
TABLE 1

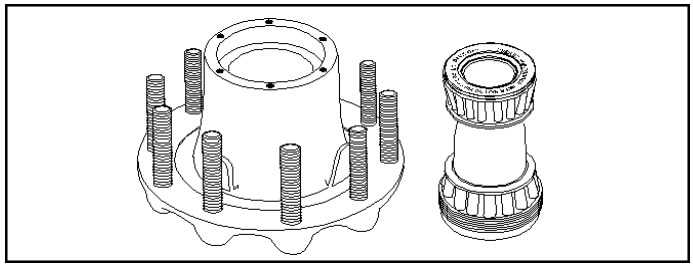
For information on ConMet PreSet Oil Lubricated Wheel Ends and our standard lightweight aluminum hubs for manually adjusted bearings, refer to the corresponding service manual (see table 1). Contact ConMet at 1-800-547-9473 for other available technical or product information, or visit our web site at www.conmet.com.

PRESET PREGREASED WHEEL ENDS

ConMet PreSet PreGreased Wheel Ends come complete with pre-greased, pre-installed cups and cones, grease retainers, and seals. These wheel ends are unique in that a precision tubular spacer is utilized between the bearings, eliminating the need for manual bearing adjustment (see figures 6 and 7).



Preset TN Trailer Hub
FIGURE 6

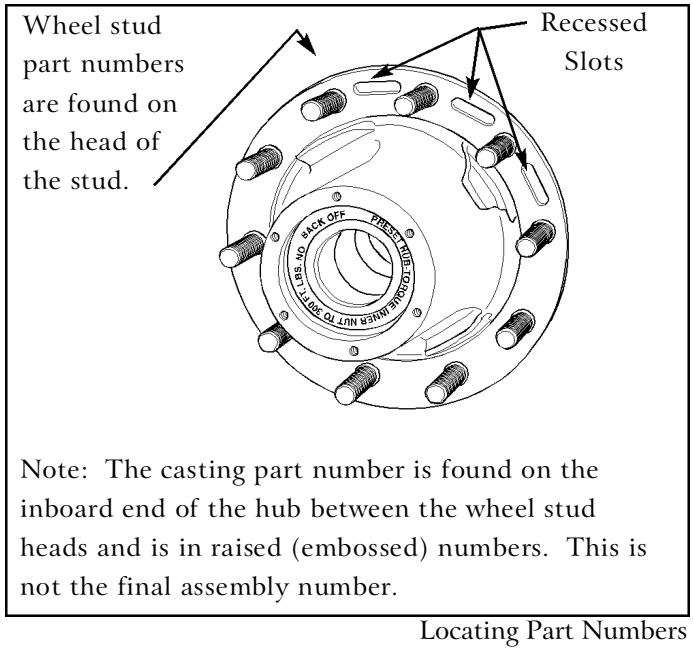


Preset TP Trailer Hub
FIGURE 7

PART NUMBER LOCATION

For additional information on your ConMet PreSet PreGreased Wheel End, locate the part numbers stamped on the hub. The hub assembly part number is located on the brake drum mounting surface in the recessed slots or on the smooth machined surface between any of the wheel studs (see figure 8). The six digit assembly part number which is recessed in the hub may be separate or in combination with the production assembly date code. For example, 27299D1106412-1 is a production assembly code and is broken down as follows:

272	99	D1	106412	-1
Day of Year	Year	Operator	Assembly No.	Mfg. Code


Wheel stud part numbers are found on the head of the stud.
Recessed Slots
BACK OFF
PRESET HUB-TORQUE INNER NUT TO 300 FT. LBS. NO

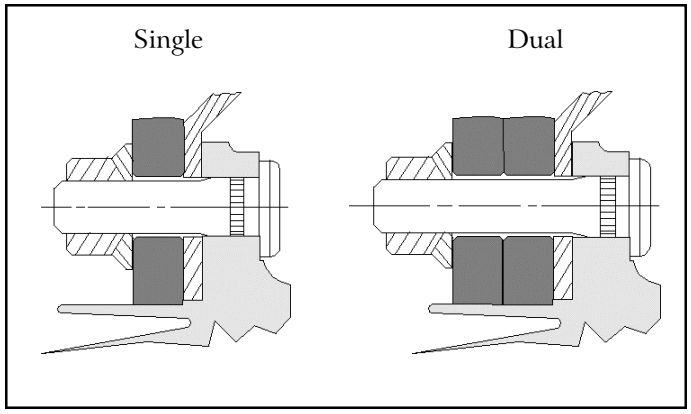
Note: The casting part number is found on the inboard end of the hub between the wheel stud heads and is in raised (embossed) numbers. This is not the final assembly number.

Locating Part Numbers
FIGURE 8

WHEEL MOUNTING SYSTEMS

ConMet PreSet PreGreased Wheel Ends are available in both hub pilot and ball seat nut configurations.

Hub Pilot Wheel Mounting System

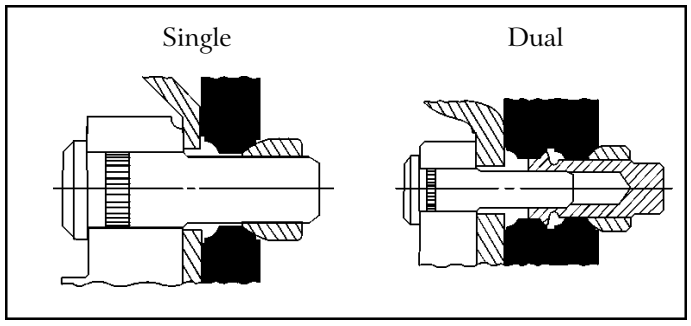


Hub Pilot Mounting Systems
FIGURE 9

The hub pilot wheel mounting system makes use of a single two piece flange nut on each wheel stud for both single and dual wheel applications (see figure 9).

The hub pilot wheel mounting system is also known as the Uni-Mount-10™ (10 stud), WHD-10™ (10 stud), WHD-8™ (8 stud), and ISO system.

Ball Seat Wheel Mounting System



Ball Seat Mounting Systems
FIGURE 10

The ball seat wheel mounting system makes use of the spherical contact area between the nut and wheel to both locate the wheel and hold the wheel tight against the brake drum (see figure 10).

The ball seat wheel mounting system is also known as the stud piloted, ball seat cap nut (BCN) and double cap nut (DCN) system.

ConMet recommends a complete inspection in conjunction with brake and/or tire service.

NOTE

In addition to the complete inspection at brake and/or tire service, maintain current shop preventive maintenance and pre-trip inspection practices.

VISUAL INSPECTION

With ConMet PreSet PreGreased Wheel Ends, there will be no visible leakage of grease or oil. Inspect for other visible signs of distress such as cracks in the hub or heat discoloration, as well as unusual tire wear.

OPERATING TEMPERATURE

Operating temperatures can be checked as the vehicle enters the service area following a normal run. If the hub is running at temperatures in excess of 150°F above ambient in normal operating conditions, service is required.

FUNCTIONAL CHECKS

NOTE

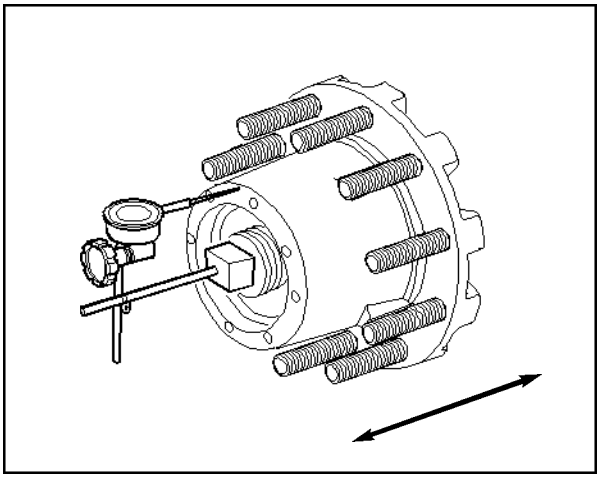
Conduct the following inspections with the wheel(s) and drum removed.

⚠ DANGER

Never work under a vehicle supported by a jack without supporting the vehicle with stands and blocking the wheels.

Rotate the hub and check for free, smooth, and quiet rotation. If rotation is hampered, PreSet PreGreased Wheel Ends should be serviced immediately. Also, check hub for excessive end play as follows in the End Play section, page 5.

End Play



Checking for End Play
FIGURE 11

1. Remove the hubcap, and use a dial indicator with a magnetic base mounted on the spindle end, to read the travel at the hub cap mounting surface (see figure 11).

2. Grasp two wheel studs across from each other to pull and push the hub.

3. Measure the end play by the difference between the minimum and maximum dial indicator readings.

⚠CAUTION

PreSet PreGreased Wheel Ends should be serviced if end play exceeds 0.006".

HUB REMOVAL AND DISASSEMBLY

NOTE

ConMet recommends PreSet PreGreased Wheel End service at approximately 500,000 mile intervals.

⚠DANGER

Never work under a vehicle supported by a jack without supporting the vehicle with stands and blocking the wheels.

1. Prepare the axle for disassembly by using a jack to raise the axle until the wheels are off the ground, and the axle is properly supported.

⚠CAUTION

Care should be taken to avoid damaging the hub or other components.

NOTE

If you plan to replace the brake drum (i.e., full cast instead of Centrifuse™) or wheels (i.e., aluminum instead of steel), measure stud standout (see figure 12). In hub piloted mounting systems, the studs must be long enough for the threads to be exposed beyond the installed wheel nut. In the ball seat mounting system, the stud length beyond the brake drum should be from 1.31-1.44" as measured from the brake drum to the end of the stud. Call ConMet at 1-800-547-9473 for the correct stud part number for your application.

If you plan to replace the brake drum, verify the new drum has the same drum pilot diameter as the one that has been removed.

2. Remove the wheels and brake drum (see figure 13).

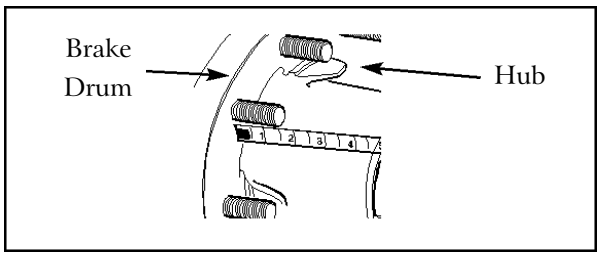
3. Examine the spindle nut to determine the locking system, and disengage the locking device.

4. Remove the spindle nut system (see figure 14).

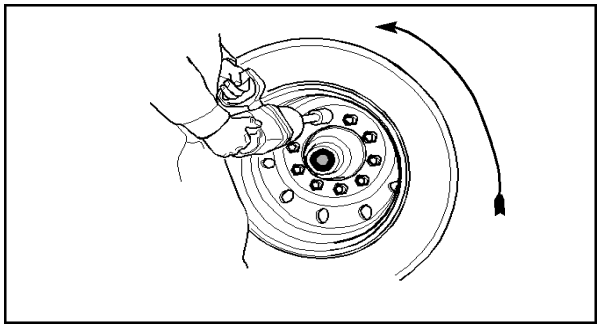
5. Slide the hub off the spindle.

⚠CAUTION

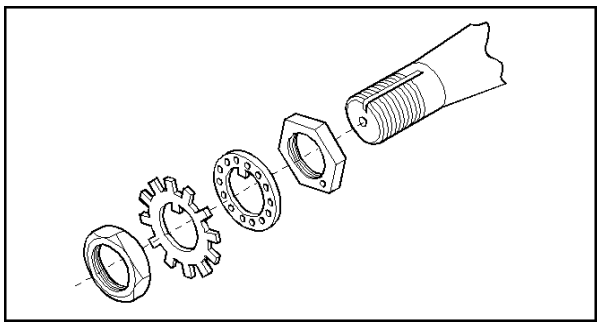
Occasionally, the seal can become stuck on the spindle, making the hub difficult to remove. If mechanical assistance is required to remove the hub, care should be used to avoid damage to wheel end components (see figure 15). In some cases, part of the seal will remain on the spindle. When removing this portion of the seal, care should be taken not to damage the spindle or seal journal.



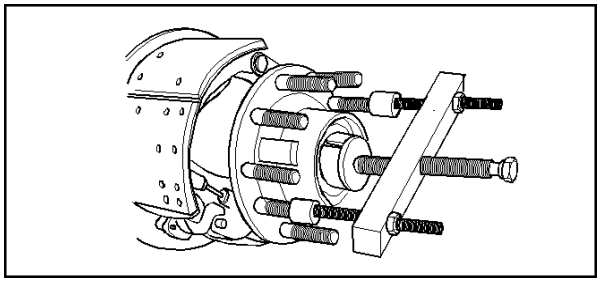
Measuring Stud Standout
FIGURE 12



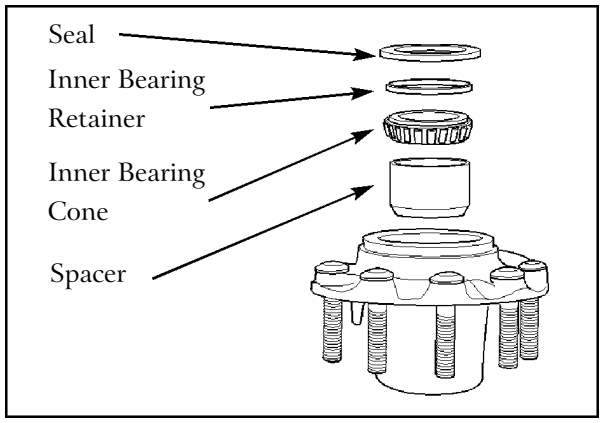
Removing the Wheels
FIGURE 13



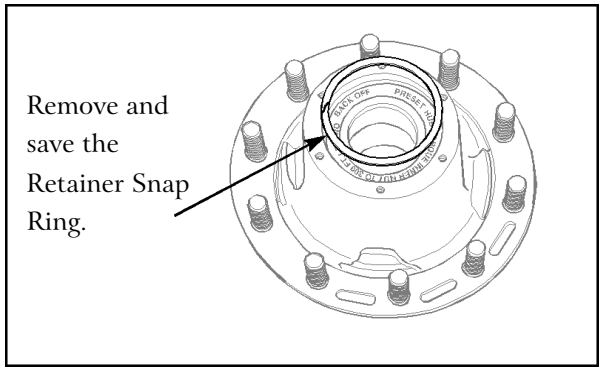
Typical Spindle Nut System
FIGURE 14



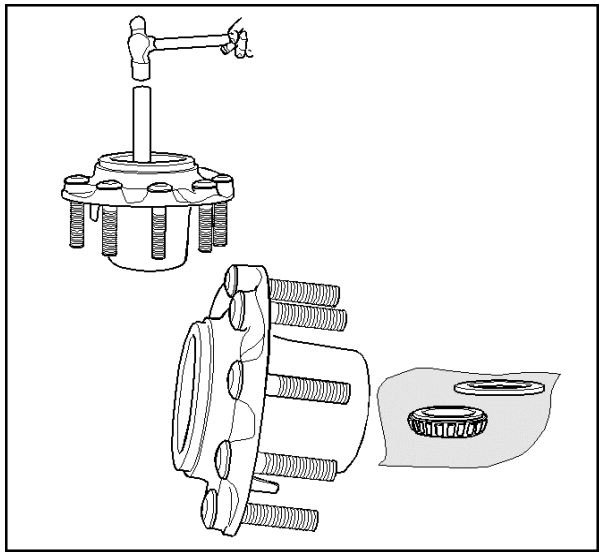
Mechanical Puller
FIGURE 15



Hub Disassembly
FIGURE 16



Removing Retainer Snap Ring
FIGURE 17



Dislodging Outer Bearing Cone
FIGURE 18

NOTE

ConMet makes several tools to assist in the removal of wheel end components. These tools are available for purchase and are listed in the back of this manual (see tables 8-11).

6. Place the hub on its outboard end and remove the seal, and if present, the inner bearing retainer. Discard both of these items unless the seal must be retained for warranty consideration (see figure 16).

7. Remove and save the inner bearing cone, and spacer (see figure 16).

8. Turn the hub outboard end up and remove and save the retainer snap ring (see figure 17).

9. Turn the hub over, and using a drift pin and hammer, lightly tap on the outer bearing cone to dislodge it and the outer grease retainer (see figure 18).

10. Discard the outer grease retainer.

NOTE

All components replaced under warranty must be returned for consideration of reimbursement. Contact the OEM manufacturer for their warranty return policy.

SERVICE KITS

Complete service kits are available from ConMet and contain all components necessary to service wheel ends (see table 12 for additional information). These kits do not include wheel studs.

For wheel stud service and replacement information, see the Wheel Stud section of Inspection, Repair, and Replacement, page 10. Stud part number information is available in the Part Number Location section, page 2.

BEARING CUPS AND CONES

⚠CAUTION

Grease retainers may have sharp edges.

1. Thoroughly clean and degrease all components with a nonflammable solvent.

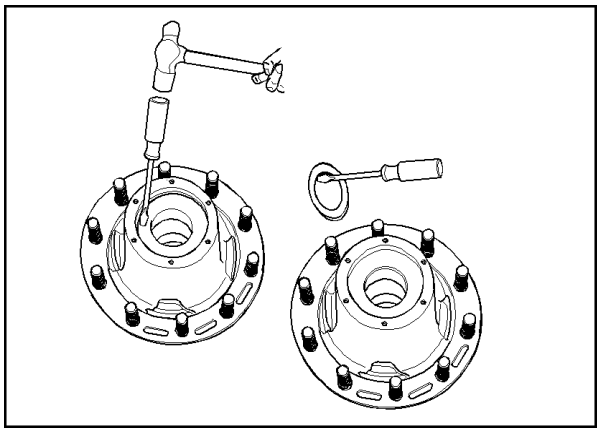
⚠CAUTION

If a bearing cup or cone shows signs of deterioration, replace the suspect part along with the mating component. Use the appropriate replacement parts to ensure proper bearing adjustment (see table 12). When reinstalling cups, be certain they are pressed fully against their seats.

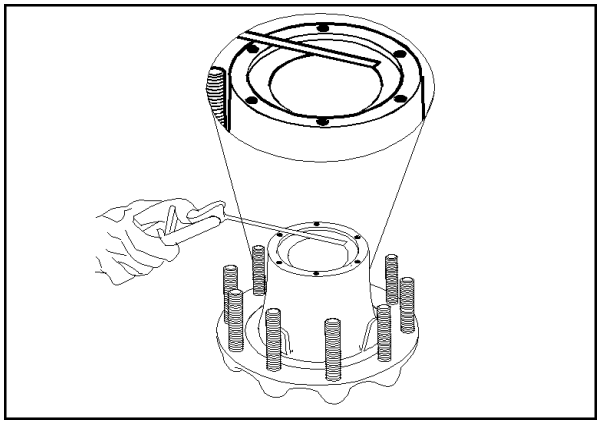
2. If a bearing cup needs replacement, first drive the associated inner grease retainer toward the center of the hub to collapse the grease retainer so it can be removed and discarded (see figure 19).

3. Remove the bearing cup by welding a large bead around the bearing surface of the steel cup, letting the assembly cool, and removing the bearing cup (see figure 20).

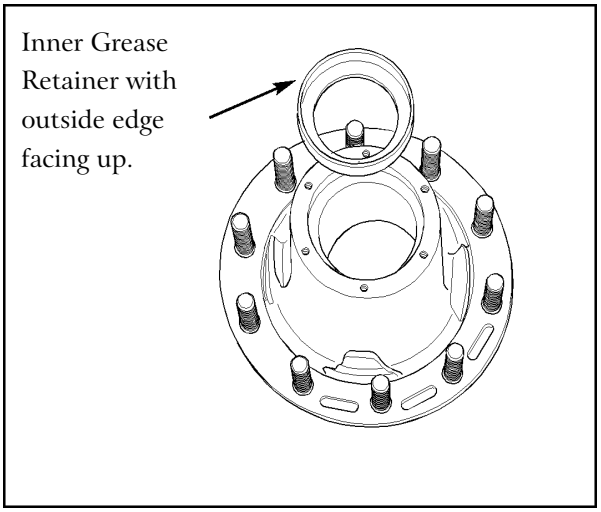
   As an alternate method, remove the bearing cup using a large hammer and a heavy drift,



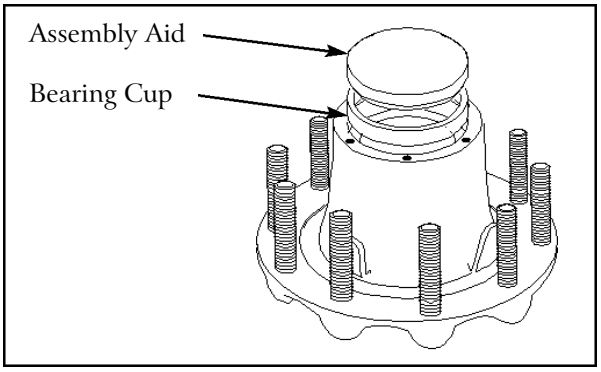
Collapsing the Grease Retainer
FIGURE 19



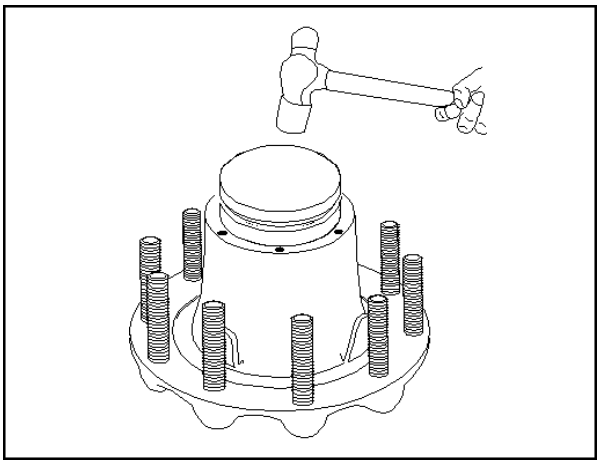
Welding Bead
FIGURE 20



Inner Grease Retainer Outside Edge Up
FIGURE 21



Press Bearing Cup into Hub
FIGURE 22



Driving Bearing Cup Into Place
FIGURE 23

along with the appropriate cup knockout tool, as listed in the back of this manual (see table 9). Take precaution to avoid damaging the bearing cup bore and shoulder.

4. Inspect the bearing cup bore for evidence of cup rotation (spun cups). If noted, replace the hub.

5. To install new cups and inner grease retainers, it is recommended that the hub be heated evenly throughout in an oven or in boiling water to 175-215° F.

⚠CAUTION

Do not overheat the hub.

6. Remove the hub from the oven or hot water. Place the inner grease retainer with the outside edge up in the bottom of the cup bore. The inner grease retainer will become fully seated when the cup is installed (see figure 21).

7. Place the bearing cup in the hub. Obtain the appropriate assembly aid as listed in the back of this manual (see table 7) and place it on top of the bearing cup (see figure 22).

8. Drive the bearing cup and inner grease retainer into place (see figure 23). Variations within tolerances of materials and oven temperatures may require the bearing cup and inner grease retainer be pressed into the hub.

⚠CAUTION

Failure to support the installed bearing cup in its seated position may cause the cup to drop away from the shoulder of the hub.

9. Turn the hub over and support the installed bearing cup in its seated position.

10. Place the other inner grease retainer with the outside edge up in the bottom of the cup bore and assemble the grease retainer and bearing cup as described above in steps 7 and 8.

WHEEL STUDS

Replace all wheel studs that have damaged or distorted threads, are broken or bent, or are badly corroded. Also, replace the stud adjacent to the original stud being replaced due to damage. If two or more studs have damage, replace all the studs in the hub.

Inspect the drum, wheel pilots, and mounting face on the hub for damage. Also inspect the wheels and brake drum for damage.

Stud Removal

⚠WARNING

Observe all warnings and cautions for press operation provided by the press manufacturer to avoid serious personal injury and damage to components.

1. Place the clean hub in a shop press with the hub supported evenly around and adjacent to the stud being removed.

⚠WARNING

Failure to adequately support the hub can result in physical injury and/or damage to the hub.

⚠CAUTION

Some hubs are configured so it is impractical to have supports to prevent the hub from tipping when force is applied to the stud. In this case, support the hub on wood blocks on the floor and use a heavy hammer to drive the studs out with several sharp blows. Be careful to avoid damaging the hub and components, particularly the seal bore and ABS tone ring.

2. Press the stud out of the hub.

Stud Replacement

⚠CAUTION

On the ball seat wheel mounting system, always use left-handed threaded studs on left-handed hubs, and use right-handed threaded studs on right-handed hubs.

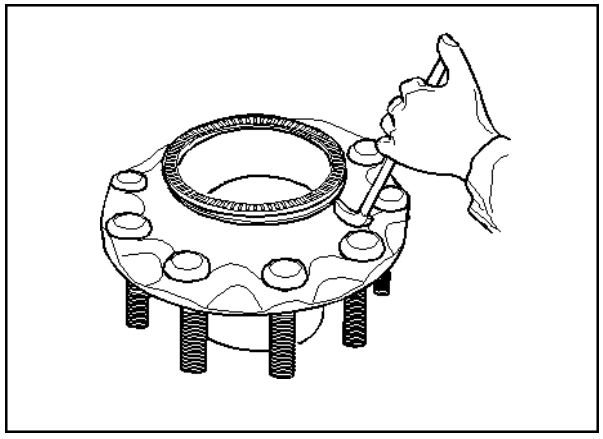
The ConMet part number is located on the head of the stud. The same part number must be used for replacement unless changing the drum or wheel type.

1. To install a new stud, support the hub evenly around and adjacent to the stud being installed.

2. Press the new stud all the way into the hub. Be sure the stud is fully seated and that the stud head is not embedded into the hub.

⚠WARNING

If the stud head is embedded into the hub, the hub should be replaced.



Using Pry Bar to Remove ABS Ring
FIGURE 24

ABS TONE RING (AS APPLICABLE)

1. Inspect the ABS Tone Ring for any damage caused during hub removal or hub servicing.

2. If replacement is necessary, use a small pry bar or hammer (see figure 24) to gently remove the ring, using a circular pattern around the ring to prevent cocking.

3. Thoroughly clean and degrease the ABS ring seat on the hub with a nonflammable solvent.

⚠CAUTION

Replace the hub if the ABS ring seat is damaged.

The ABS ring must be fully seated with a maximum of 0.008" axial runout to ensure the ABS system functions properly.

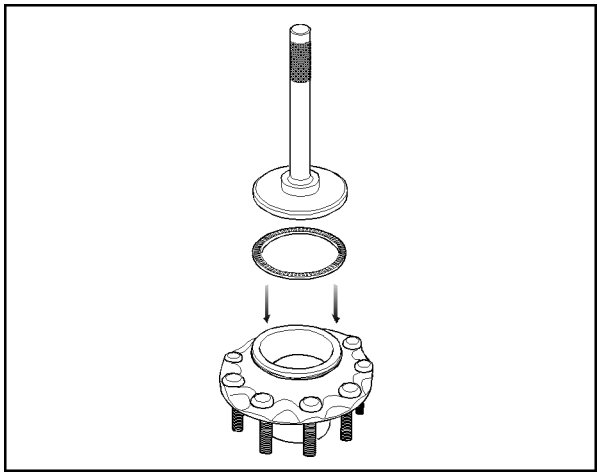
4. Place the hub in a press and place the ABS ring on the hub ring seat.

5. Using ConMet ring installation tool part number 107119, center the tool over the ABS ring. Each type of ring fits a corresponding diameter in the tool (see figure 25).

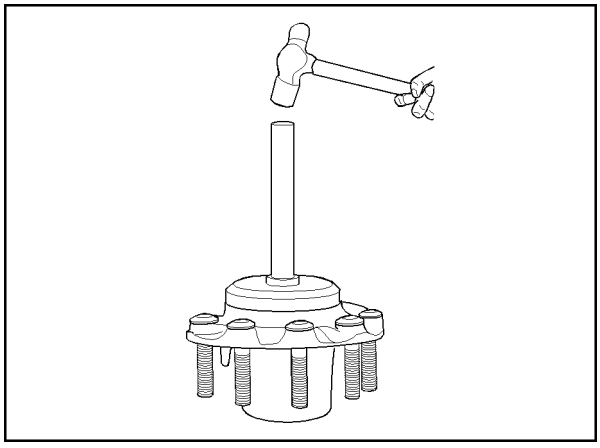
6. Press the ring on the hub. If a press is not available, drive the ring on with a hammer or mallet until the ring seats on the hub (see figures 25 and 26).

7. Inspect the ring to ensure proper seating. If the ring is not completely seated, continue to drive the ring with the ring installation tool until the ring is completely seated.

   A dial indicator can be used once the hub is reinstalled on the spindle to check axial runout.



Installing the ABS Tone Ring
FIGURE 25



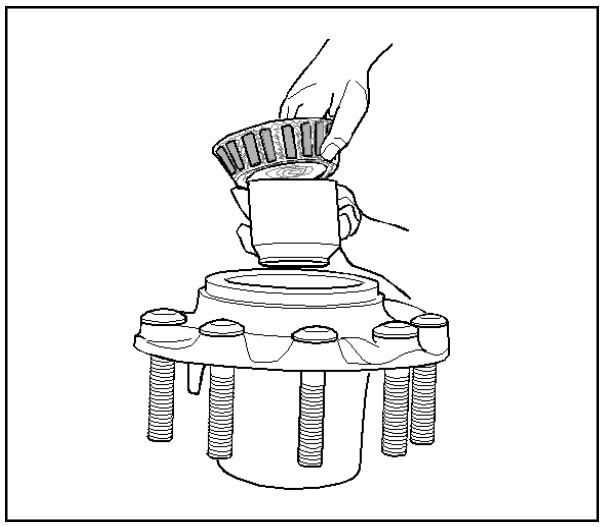
Using a Hammer to Install the Ring
FIGURE 26

REASSEMBLY

PRESET PREGREASED WHEEL ENDS

⚠CAUTION

When using the PreSet PreGreased system, do not add oil to the bearing. The oil may not be compatible with the grease, and/or the oil may wash the grease from the bearing.



Bearing Cone Assembly
FIGURE 27

1. Pack the bearing cone with Mobilith SHC 220 grease, ensuring that the grease completely fills the area between the rollers and cage. This can be done manually or with a bearing packer.

NOTE

Bearing cone must be fully packed with grease. Excess grease should be smeared on the outside of the rollers.

2. A small quantity of grease can be added to the bearing cavity in the hub.

NOTE

Ample space is essential in the bearing cavity to allow room for excess grease to be thrown from the bearing. Normally the bearing cavity itself should be no more than half full of grease during assembly. Too much grease will cause excess churning of the grease and potentially high temperatures.

3. Place the hub seal end up.

4. Place the spacer in the hub, small end down if tapered (see figure 27).

5. Place the pre-greased bearing cone in the hub (see figure 27).

NOTE

The seal must be replaced every time the hub is removed from the spindle.

Do not apply any gasket sealant to the seal outer or inner diameter.

Always use the seal installation tool specified by the seal manufacturer. Using an improper tool can distort or damage the seal and cause premature seal failure. See table 2 for Wheel Seal and Eaton Tool Selections.

Always place the seal with the "air side" facing the adapter plate of the installation tool.

AXLE	CONMET (TIMKEN)	EATON
TP	107840	851
TN	107839	859

Wheel Seal and Eaton Tool Selections
TABLE 2

⚠CAUTION

Failure to lubricate the outer seal diameter and the seal bore may result in premature seal failure.

6. Lubricate the seal outer diameter and the hub seal bore.
7. Position the seal in the seal installation tool and center the tool in the hub. Tap the adapter plate around the outer edge to position the seal.
8. Drive the seal into place (see figure 28). Once the tool bottoms out, the seal is installed correctly. Check to be certain the seal is not cocked.

⚠CAUTION

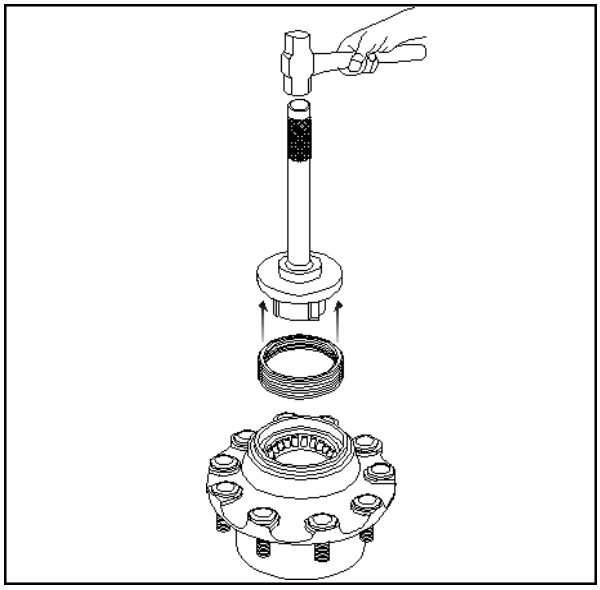
Failure to lubricate the inner diameter of the seal and the seal journal may result in premature seal failure.

9. Lubricate the inner diameter of the seal with a light film of clean Mobilith SHC 220 grease.
10. Turn the hub over, and place it seal end down.
11. Lubricate the outer bearing cone with Mobilith SHC 220 grease and install it into the hub assembly (see figure 29).
12. Place the outer grease retainer with the words "PRESET HUB–TORQUE INNER NUT TO 300 FT. LBS. NO BACK OFF" facing out (see figure 30).

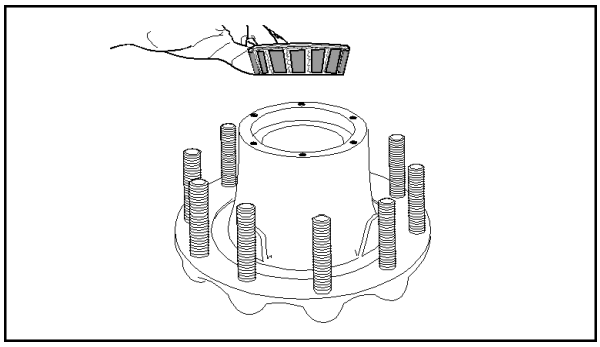
NOTE

To aid installation of the outer grease retainer, grind the outside diameter of an old bearing cup until it will clear the cup bore and can be used as an installation tool.

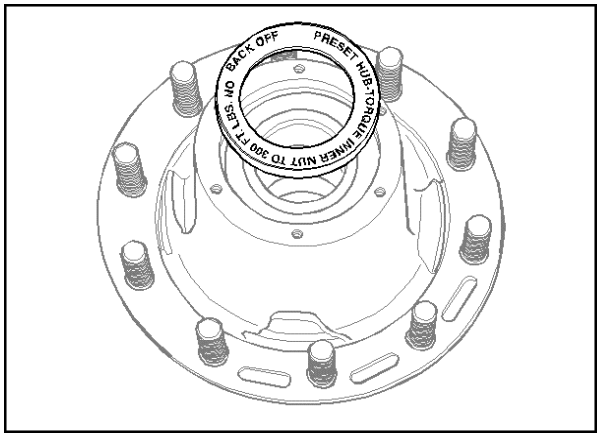
13. Insert the cup tool with the thin edge against the outer grease retainer and tap lightly on the thick edge until the retainer clears the spring retainer ring groove.



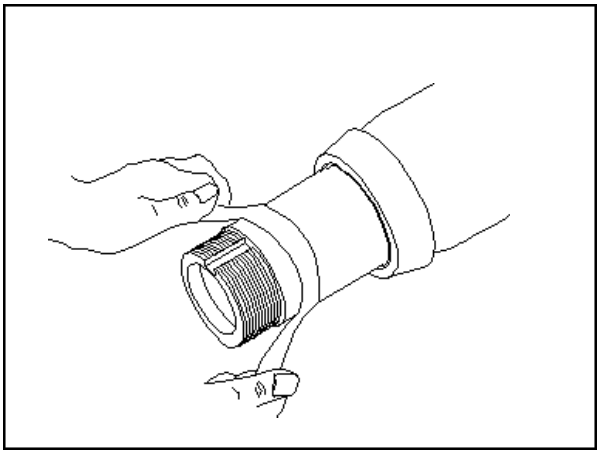
Driving the Seal into Place
FIGURE 28



Installing the Outer Bearing Cone
FIGURE 29



Installing the Outer Grease Retainer
FIGURE 30



Removing Corrosion
FIGURE 31

14. Install the spring retainer.

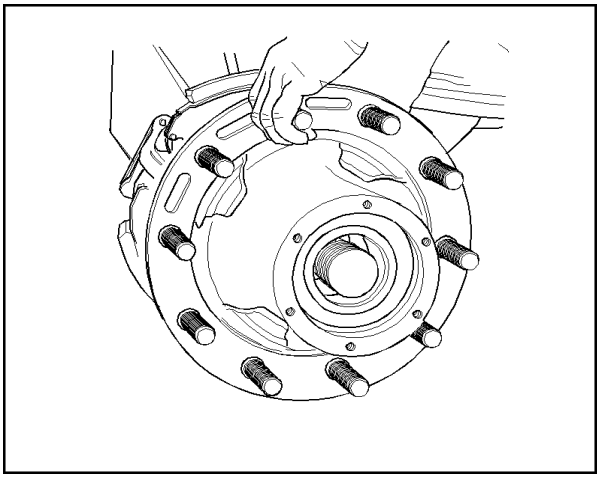
⚠CAUTION

Failure to apply grease to the bearing journals will result in fretting corrosion, which may result in difficulty removing the bearing.

15. Corrosion that forms from either exposure to the elements or fretting corrosion while in service must be removed with a fine abrasive (see figure 31). When the residue is cleaned away, the bare spindle is again subject to corrosion and must be covered with a film of grease for corrosion protection, making sure both the bearing journals and the seal journal are well coated. Standard Grade 2 grease works well in normal environments. In severe environments, a moly-grease may provide added protection.

REINSTALLATION

INSTALLING THE PRESET PREGREASED WHEEL END



Mounting the Hub Assembly
FIGURE 32

⚠CAUTION

Never support the hub on the spindle with just the inner bearing and seal. This can damage the seal and cause premature failure, i.e., by cocking the seal in the bore.

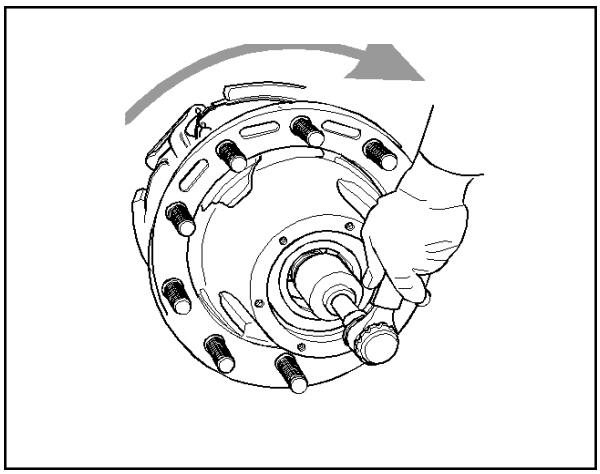
1. Mount the hub assembly onto the axle spindle with a smooth, firm motion. Slide the hub on the spindle until the hub meets resistance against the seal journal. Use care to maintain alignment between the bearing cones, spacer, and spindle, and to avoid seal damage (see figure 32).

2. Install the spindle nut and use the nut to push the hub and seal into position. Torque the nut to 300 Ft• Lbs. (see figure 33).

NOTE

Do not back off the spindle nut.

3. Engage any locking device that is part of the spindle nut system. If the locking system cannot be engaged when the nut is at 300 Ft.•Lbs., advance the nut until engagement takes place and the nut is locked. If a double nut or jam nut system is being used, install the second nut with 200 Ft.•Lbs. torque.



Reinstalling the Spindle Nut
FIGURE 33

INSTALLING THE HUBCAP

⚠CAUTION

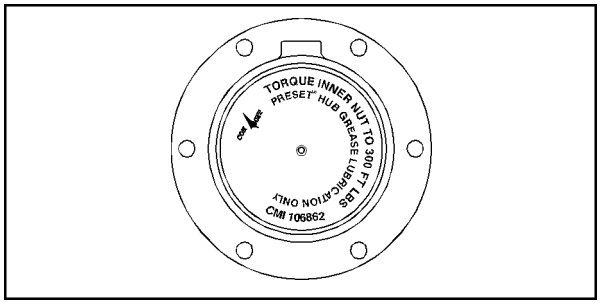
A ConMet PreSet hubcap is required to aid in identification of the assembly in the field. For tapered spindle applications (TN), use part number 106862 (see figure 34). For straight spindle applications (TP), use part number 106866 (see figure 35). Replace vented hubcaps with non-vented hubcaps when using the Timken Grease Seal.

NOTE

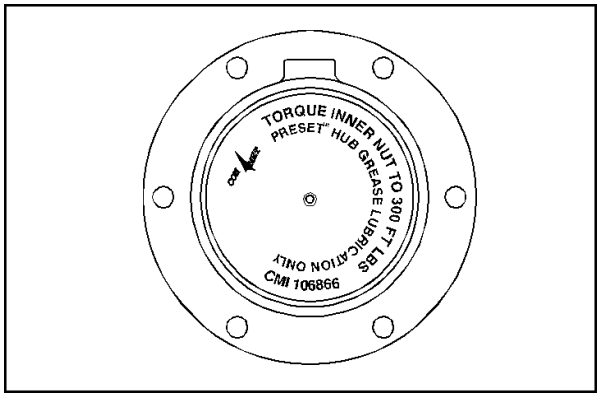
The hubcap bolt holes must be free of debris, such as silicon gasket sealer, to ensure the bolts will tighten properly to avoid leaks. Remove any burrs or sharp edges. Always use new gaskets.

1. Install the hubcap gasket and hubcap.

2. Torque the hubcap bolts to 12-18 Ft.•Lbs., using a star pattern.



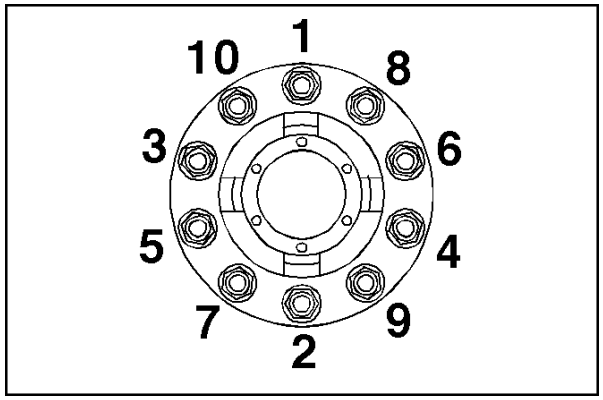
Tapered Spindle
FIGURE 34



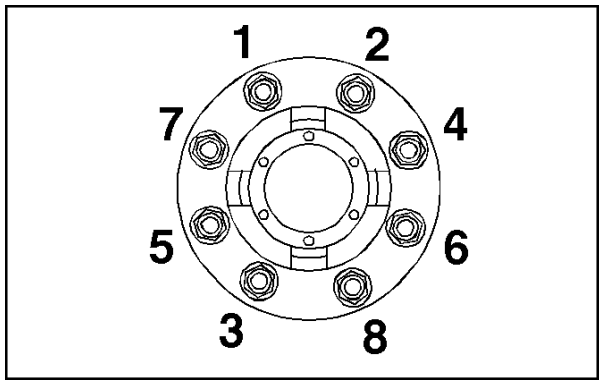
Straight Spindle
FIGURE 35

BRAKE DRUMS AND WHEELS

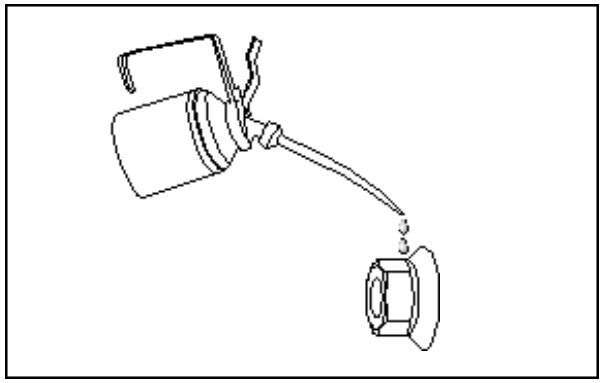
Hub Pilot Wheel Mounting System



10 Stud Tightening Sequence
FIGURE 36



8 Stud Tightening Sequence
FIGURE 37



Oiling the Flange Nut
FIGURE 38

⚠CAUTION

The brake drum must be fully seated on the drum pilot and against the hub face during and after installation of the wheel(s).

NOTE

If your shop practice requires the use of lubricant or anti-corrosion material to the threads and/or the drum pilot area, avoid getting lubricant on the flat mating surfaces of the hub, drum, and wheels.

⚠WARNING

Always tighten the top nut first to fully seat the brake drum on the drum pilot and against the hub face. See the adjacent diagram for bolt tightening sequence, and tighten in order from 1 through 8 or 10, depending on the bolt pattern (see figures 36 and 37).

1. Clean all mating surfaces on the hub, drum, wheels and nuts. Remove loose paint, scale, and any material building around the pilots of the drum, hub, and wheels. Be sure paint is fully cured on recently refurbished wheels.
2. In environments where a corrosion inhibitor is beneficial, ConMet recommends the use of Corrosion Block, a product of Lear Chemical Research, (905) 564-0018. In severely corrosive environments, a light coat of Corrosion Block on the drum and wheel pilots has proven beneficial.
3. Apply two drops of oil to the flange nut, between the nut and flange (see figure 38), and two drops to the last two or three threads at the end of each stud. Also, lightly lubricate the pilots on the hub to ease wheel installation and removal.

⚠ CAUTION

Do not get lubricant on the mounting face of the drum or wheel. Failure to clean lubricant from these surfaces may result in decreased clamping load.

4. Before installation of brake drums and wheels that utilize the hub piloted system, rotate the hub so one of the wheel pilot bosses is at the top (12 o'clock position) (see figure 39).

5. Position the brake drum over the hub, so it seats on the drum pilot and against the hub face.

6. Place the wheel(s) into position. One or more nuts can be started in order to hold wheel(s) and drum into position.

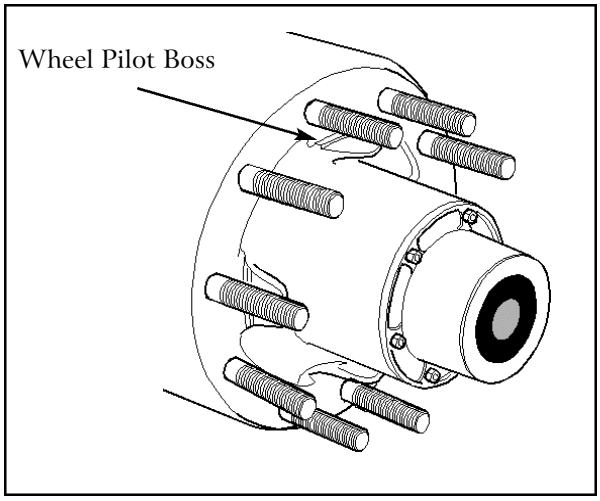
7. Tighten the top nut first. Apply 50 Ft•Lbs. torque to draw up the brake drum fully against the hub (see figure 40).

8. Install the remaining wheel nuts and using the sequence as shown, torquing all the nuts to 50 Ft.•Lbs, then retorque in stages following the same sequence to 450-500 Ft.•Lbs. (see figures 36 and 37).

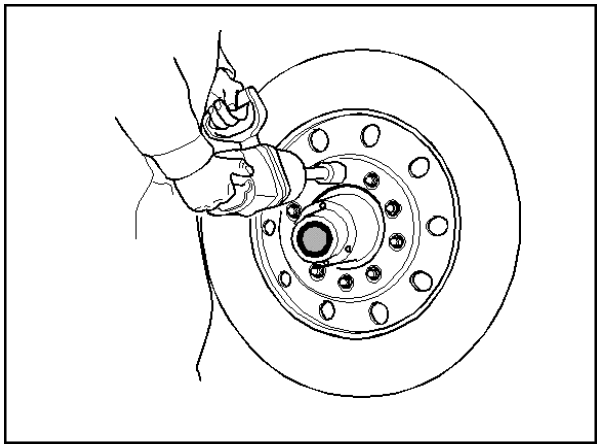
9. Inspect the brake and wheel installation by checking the seating of the wheel(s) and drum at the pilots, and by turning the wheel(s) and checking for any irregularity.

⚠ DANGER

Improper wheel nut torque can result in a failure of the wheel mounting system. After the first 50-100 miles, retorque all the nuts to 450-500 Ft.•Lbs.

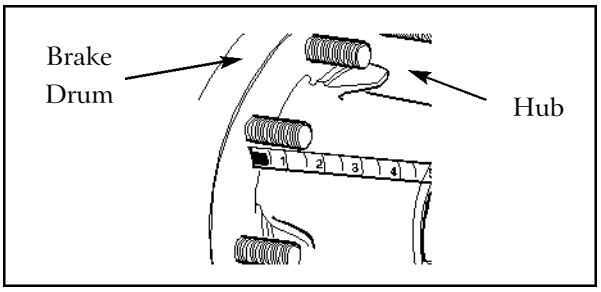


Rotating the Hub
FIGURE 39



Reinstalling the Wheel
FIGURE 40

Ball Seat Wheel Mounting System



Stud Standout
FIGURE 41

Aluminum Wheels	ALCOA Cap Nut Number
3/4-16" Threaded Studs	5995 R and 5995 L

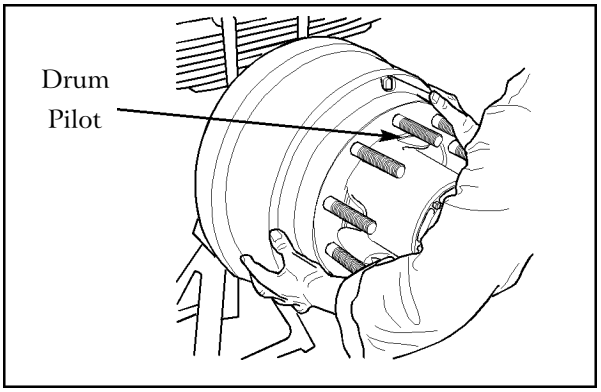
Single Aluminum Wheel Applications
TABLE 4

Steel/Alum. Wheels	ALCOA Cap Nut Number
3/4-16" Threaded Studs	7896 R and 7896 L

Dual Steel and Aluminum Wheel Applications
TABLE 5

Steel Wheels	BATCO Cap Nut Number
3/4-16" Threaded Studs	13-3013 R and 13-3013 L

Single Steel Wheel Applications
TABLE 6



Rotating the Wheel Pilot to 12 O'Clock
FIGURE 42

Clean all mating surfaces on the hub, drum, wheels and nuts. Remove loose paint, scale, and any material building around the pilots of the drum, hub, and wheels. Be sure paint is fully cured on recently refurbished wheels.

NOTE

When dual wheels are mounted, the stud length beyond the brake drum (standout) should be from 1.31-1.44" as measured from the brake drum to the end of the stud (see figure 41).

When mounting dual aluminum wheels, use ALCOA inner cap nuts 5988R and 5988L or the equivalent. These nuts can also be used with longer studs up to 1.88" standout.

For special single aluminum wheel applications on drive and trailer hubs, use ALCOA single cap nuts 5995R and 5995L (see table 4).

For use with steel inner dual wheel and aluminum outer wheels, use ALCOA inner cap nuts 7896R and 7896L (see table 5).

For single steel wheel applications, use BATCO 13-3013R and 13-3013L or the equivalent (see table 6).

1. When installing the inner dual, verify the inner nuts being used are suitable for the application: aluminum wheels, steel wheels, brake drum thickness.

⚠ CAUTION

Inner cap nuts must be deep enough to ensure the stud will not bottom inside the nut and must be of a configuration approved by the wheel manufacturer.

2. Rotate the hub to bring a drum pilot to the top (12 o'clock) position (see figure 42). Position the inner wheel and tire assembly over the studs and against the drum.

3. Beginning in the 12 o'clock position, install the inner cap nuts by hand to ensure they are not cross-threaded. Do not tighten any nuts at this time.

4. Apply sufficient torque (about 50 Ft.•Lbs.) to the inner top cap nut to draw up the brake drum on the drum pilot and against the hub and seat the ball seat of the nut into the ball socket of the wheel (see figure 43).

5. To properly center the wheel, lightly tighten the remaining wheel nuts. Verify the drum is in place over the drum pilots.

6. Starting with the top nut first and using a staggered pattern, torque the inner wheel nuts in stages to 450-500 Ft•Lbs. (see figure 44).

NOTE

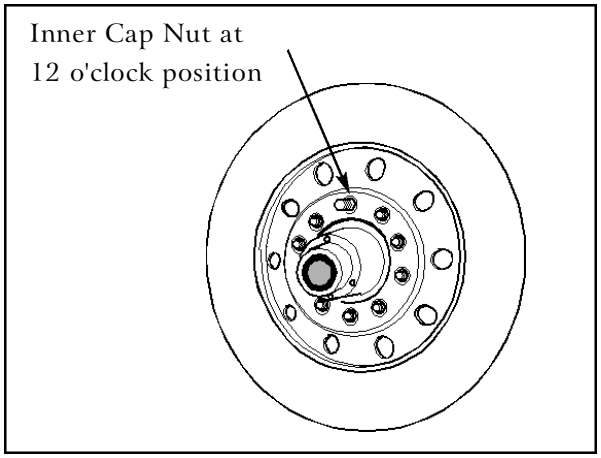
Use the appropriate nuts with the above technique to install the front and outer dual wheels. Follow your shop practice to locate the valve stems.

7. Install the outer wheel and nuts and tighten in stages to 450-500 Ft.•Lbs. (see figure 45).

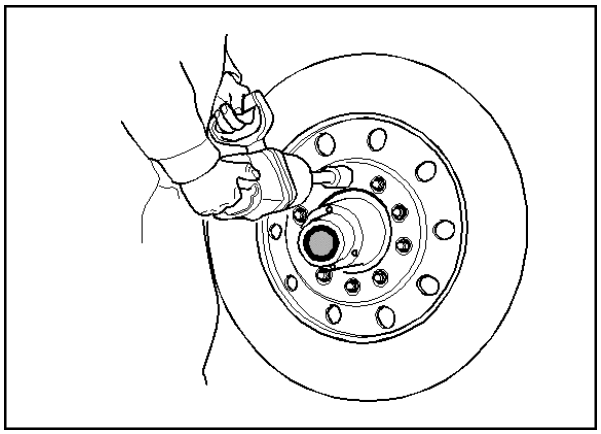
8. Inspect the brake and wheel installation by checking the seating of the wheel(s) and drum at the pilots and by turning the wheel(s) and check for any irregularity.

⚠ DANGER

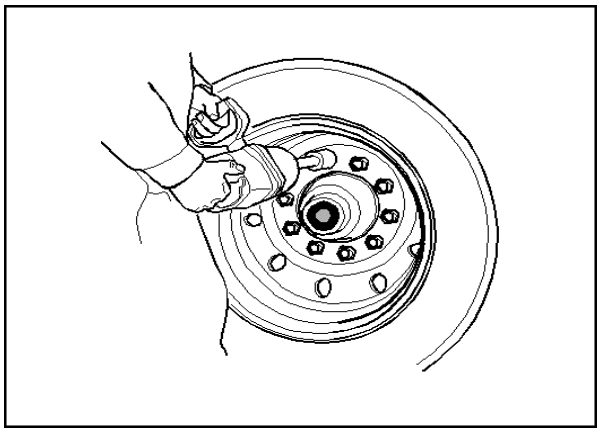
Improper wheel nut torque can result in a failure of the wheel mounting system. After the first 50-100 miles, retorque all the nuts to 450-500 Ft.•Lbs. Always remove the load from the wheels by jacking the truck or trailer up when retorquing. Loosen the outer nuts to retorque the inner nuts.



Tightening the Inner Cap Nuts
FIGURE 43



Torquing the Inner Wheel Nuts
FIGURE 44



Torquing the Outer Wheel Nuts
FIGURE 45

Assembly Aids Kit (Part No. 107525)

Part No.	Description	Qty.
107526	Cup Pusher Trailer TN Inner NP503727	1
107527	Cup Pusher Trailer TN Outer and Steer Inner, NP026773	1
107528	Cup Pusher Steer Outer, NP435398	1
107529	Cup Pusher Trailer TP Inner or Outer NP593561	1
107530	Cup Pusher Drive Inner, NP363298	1
107531	Cup Pusher Drive Outer, NP053874	1

TABLE 7

Hub and Seal Puller Kit (Part No. 107508)

Part No.	Description	Qty.
107505	3/4" Threaded Rod with Flange Nut	2
107509	Cross Head	1
107510	Stud Adapter R.H. 1 1/8-16	2
107511	Stud Adapter L.H. 1/18-16	2
107512	Stud Adapter R.H. 3/4-16	2
107513	Stud Adapter L.H. 3/4-16	2
107520	Jack Screw	1
107514	Stud Adapter Metric M22 x 1.5	2
107521	Seal Puller Head for Trailer TN/TP Axle	1
107748	Universal Spindle Cap	1

TABLE 8

Disassembly Aids Kit (Part No. 107532)

Part No.	Description	Qty.
107533	Cup Knockout Trailer TN Inner NP503727	1
107534	Cup Knockout Trailer TN Outer NP026773	1
107535	Cup Knockout Steer Outer NP435398	1
107536	Cup Knockout Steer Inner NP026773	1
107537	Cup Knockout Drive Inner NP363298	1
107538	Cup Knockout Drive Outer NP053874	1
107539	Cup Knockout Trailer TP (Inner or Outer), NP593561	1

TABLE 9

TN Bearing Puller Kit (Part No. 107522)

Part No.	Description	Qty.
107505	3/4" Threaded Rod with Flange Nut	4
107520	Jack Screw	1
107523	Puller Split Head with Screws NP 965350	1
107524	Screw Block	1

TABLE 10

TP Bearing Puller Kit (Part No. 107624)

Part No.	Description	Qty.
107505	3/4" Threaded Rod with Flange Nut	4
107520	Jack Screw	1
107524	Screw Block	1
105625	Puller Split Head with Screws NP174964	1

TABLE 11

Service Parts List and Service Kit

Hub Type	Part Description	ConMet Part #	CMI Kit Complete
TN Type Trailer Axle	Inner Cup & Cone	107504	
	Outer Cup & Cone	107500	
	Spacer	104144	
	Timken Seal	107839	107547
	Grease Retainer Kit	107474	
	Grease Tube 12.5 oz.	107446	
	Mat. Safety Data	644021-00	

Hub Type	Part Description	ConMet Part #	CMI Kit Complete
TP or Propar Type Trailer Axle	Either Inner or Outer Cup & Cone	107506	
	Spacer	104412	
	Timken Seal	107840	
	Grease Retainer Kit	107475	107549
	Grease Tube 12.5 oz.	107446	
	Mat. Safety Data	644021-00	

TABLE 12

Wheel End Torque Specifications

Item	Measurement	Torque (Ft. Lbs.)	Notes
Ball Seat Wheel Nut	3/4-16 1 1/8-16	450-500 450-500	Always tighten the top nut first. If lubricant is used, apply sparingly on threads only. Consult the wheel manufacturer for torque requirements. Do not lubricate the faces of the hub, drum, wheel, or on the ball seats of the wheel nuts.
Hub Pilot Wheel Nut	22mm x 1.5 mm	450-500	Always tighten the top nut first. Apply two drops of oil between the nut and flange (see figure 38), and two or three drops to the outermost 2 or 3 threads of the wheel studs. Lightly lubricate the wheel pilots on the hub.
Drive Studs Drive Studs Drive Studs	3/4-16 5/8-18 1/2-20	40-60 40-60 40-60	Consult manufacturer's instructions for drive axle shaft installation for all drive studs.
Hub Cap	5/16-18	12-18	–
Disc Brake Rotor	-	-	See brake manufacturer specifications.
Inboard Brake Drum	-	175-200	–

TABLE 13